

# Nordgold's Bissa-Bouly Gold Mine

REALIZING BURKINA FASO'S  
GOLDEN POTENTIAL







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# NORDGOLD'S BISSA-BOULY GOLD MINE

Realizing Burkina Faso's Golden Potential

RESEARCH BY MAME COUMBA GAYE





**D**espite its classification as one of West Africa's less affluent nations, landlocked Burkina Faso shines brightly due to its notable reserves of gold..

The nation, formerly named the Republic of Upper Volta from 1958 to 1984, underwent a remarkable transformation under the visionary leadership of President Thomas Sankara, who renamed it Burkina Faso. Since then, Burkina Faso has emerged as not only a dynamic West African nation but also a prominent gold producer in the region. Since 2012, Nordgold has been one of the country's major gold producers, contributing significantly to its economic growth and development.

At the heart of Nordgold's world-class portfolio in Burkina Faso is the Bissa-Bouly Mines. The mines reportedly produce nearly 25% of Nordgold's total gold output in Burkina Faso.

### Overview

The Bissa Mine is located approximately 85km north of Ouagadougou, the capital of Burkina Faso, while Bouly lies 5km away from Bissa on the border of Sabce and Mane rural communes.

Launched in January 2013, Bissa was Nordgold's first mine in Africa. It was built on time and budget, with construction taking 15 months. The payback period was within 21 months of commissioning.

Nordgold expanded its Bissa mine three years later by launching a heap leach facility at the Bouly deposit. Bouly's construction and launch resulted from Nordgold's successful exploration programme, which identified a large, low-grade gold deposit in immediate proximity to Bissa.





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Nordgold owns a 90% interest in the Bissa and Bouly mines, with the Burkina Faso government owning the remaining 10%. The mines support more than 1,300 jobs, of which 95% are Burkina Faso nationals.

Bouly's average annual production is approximately 120 koz over a life of mine of ten years. Nordgold invested \$140 million in the Bouly project. Mine construction was concluded within 13 months and the payback period was 33 months from its commissioning date. In 2016, Bouly produced up to 20,000 ounces of gold.

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#### Production flows

Bissa reached total capacity in just two months. It is a multi-deposit modern open pit operation with drilling and blasting followed by load and haul, allowing for selective mining of ore. The material lithologies are divided into four main categories: Laterite, Saprolite, Transition, and Fresh.

Ore is treated in a 4.8Mt/a plant based on a carbon-in-leach circuit with an Anglo-American Research elution process, well



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suited for free milling gold ore treatment. The mine operates its own mining fleet, and undertakes mine planning, scheduling, grade control, surveying and quality control.

Its crushing and grinding circuit consists of a primary Jaw crusher feeding a crushed ore stockpile from which the SAG/Ball grinding circuit is fed. A pebble crusher is in a closed circuit with the SAG mill.



The SAG/Ball mills are operated in closed circuit with hydrocyclones to produce a leach feed product.

However, the Bouly mine is a one-deposit operation. Ore is hauled to the heap leach pads, while waste rocks are hauled to waste dumps. Bouly has two-stage crushing circuits: a primary Jaw crusher and a secondary cone crusher. The crushed product is conveyed by an overland conveyor to an agglomeration drum, where the ore cement and a cyanide solution are mixed to form a stable agglomerate with a high permeability for effective leach solution flow.

The ore is stacked onto a static leach pad. After the primary and secondary leach cycles, the leached gold is absorbed from the pregnant solution in carbon in solution columns.

The Bouly mine is technologically integrated with the Bissa mine for its final processing stages, including desorption, electro-winning, and smelting to produce doré bullion, all of which occur at the Bissa processing plant

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Bouly is operated by Bissa's management team and shares much of Bissa's infrastructure, including camp and mess facilities, the analytical laboratory, the Tiben raw water reservoir, power generation, mobile maintenance and warehouse facilities.

Bouly's proximity to Bissa enables it to benefit from economies of scale, expert knowledge of the local geology, and a well-trained workforce. Both benefit from cutting-edge solutions at almost every step of the production value chain, including the Wenco Fleet management system, LAS Fuel management system, and the Laboratory Information Management system.

**Environment endeavors**

The Bissa-Bouly operation has an environmental management framework that is aligned with ISO 14001 international standards. The mines are targeting certification of conformance to this standard.

Environmental considerations have been



key since Nordgold's operations began. At Bissa, ores are naturally metallurgically clean and its tailings storage facilities, designed and built by Golder, global provider of consulting, engineering and environmental services, ensure the safe containment of waste onsite.

The Bouly leach pad and associated drains and ponds were designed by Knight Piesold Australia per industry best practices and include the latest HDPE liner technology.

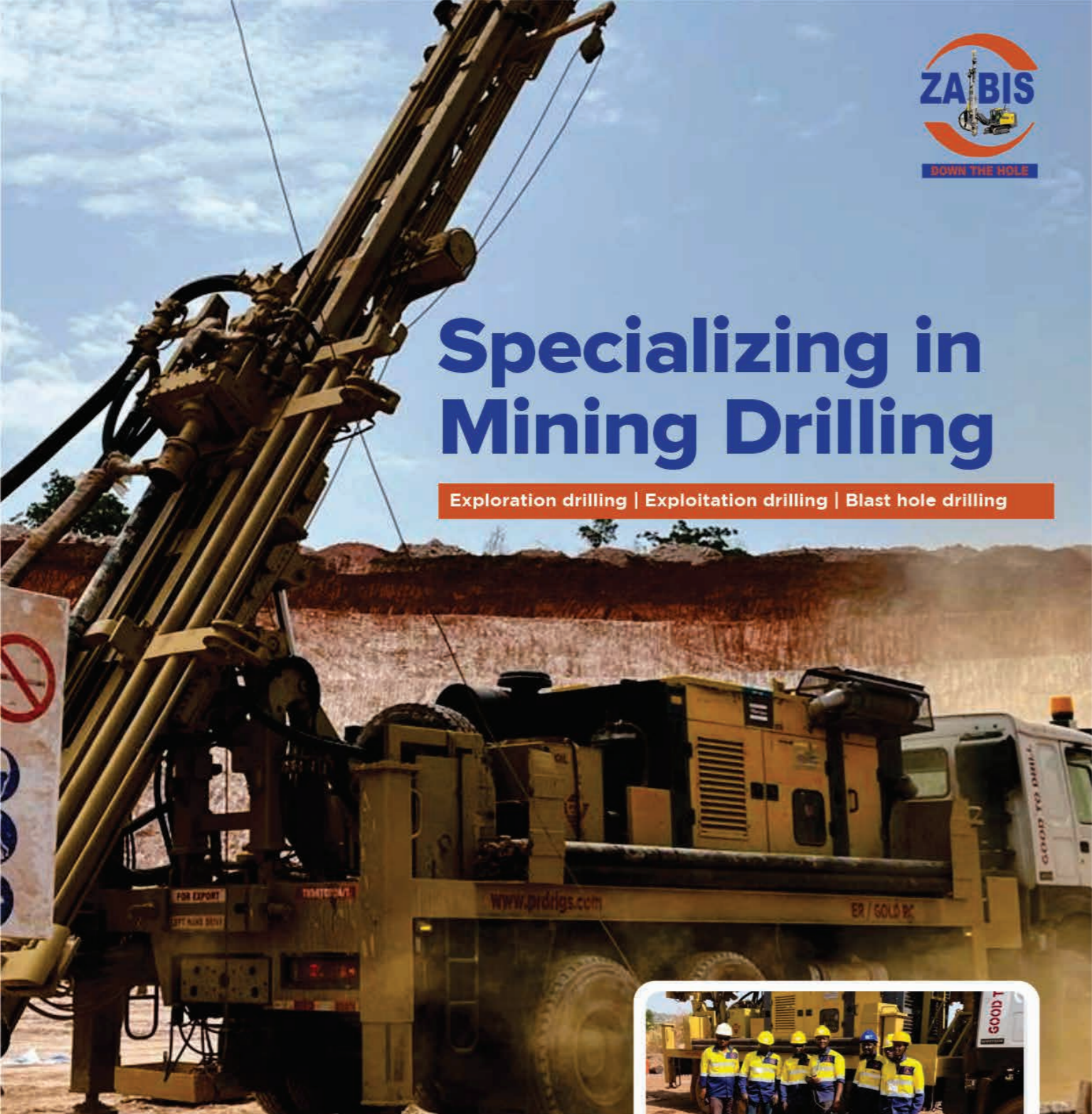
Both mines are inspected by regulatory





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authorities, with environmental inspections and health and safety inspections generally undertaken annually.

### Solar power plans

In 2019, Nordgold announced it was to enter into an exclusive agreement with Total Eren, an independent power producer specialized in renewable energies, and Africa Energy Management Platform (AEMP), its strategic development partner, to construct a 13 MW solar photovoltaic power plant for its Bissa and Bouly gold mines.

"The new Solar PV will provide Bissa and Bouly with power for both mines' daily operational needs, significantly reducing reliance on the existing thermal power plant," Nordgold said. "In addition to significantly enhancing the environmental sustainability of the mines, the solar plant will increase security of supply and reduce costs at both mines."

Under the plans, Total Eren and AEMP will develop, finance, construct and operate a solar PV plant complemented by a battery energy storage system, reducing the mine's fuel consumption by approximately 6.4 million litres and CO2 emission by approximately 18,000 t/y.

Nordgold CEO Nikolai Zelenski said: "By building this new solar power plant, not only will we improve the efficiency of our mines by creating a more secure power supply at lower cost, but we are also helping to make our Burkina Faso mines far more sustainable, while minimizing our carbon footprint."

### Strategic Supply chain partners

Nordgold Burkina Faso thrives on an exhilarating approach to partnership, seamlessly blending local ingenuity with global expertise for a truly electrifying collaboration. At the heart of its operations lie dynamic alliances with esteemed local



partners such as Compagnie Burkinabé du Commerce et de l'Industrie (COBUCI), Zabis, a mine drilling specialist operating not only in Burkina Faso but also in Guinea, Satel Burkina Faso, Betace Sarl, and SOGETEL. These partnerships pulsate with energy, igniting economic empowerment and fostering skill enhancement within Burkina Faso's vibrant communities. By tapping into the wealth of talent and resources within the nation, Nordgold ensures that its operations contribute not only to its own success but also to the prosperity of the local populace.

Yet, Nordgold's ambitions soar far beyond its domestic borders, propelled by strategic alliances with internationally renowned suppliers like Lycopodium, Atlas Copco Rock Drills AB, Total Eren, and Forage FTE. Together, these partnerships form



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a formidable powerhouse of innovation, technology, and resourcefulness, elevating Nordgold Burkina Faso to the forefront of the global mining industry. With a dynamic blend of local flair and international prowess, Nordgold sets a thrilling pace, pioneering new frontiers and shaping the future of mining with its electrifying collaborations.

**Investment and impact**

Since 2008, Nordgold has been a significant contributor to Burkina Faso's economic and social development. Investment has exceeded \$1.3 billion, and since 2009, Nordgold has contributed over \$500 million to the government in taxes and royalties.

Its concern for and understanding local

communities' needs is an integral part of its approach to doing business. Nordgold has contributed over \$22 million to social development programmes since 2009. They have been specifically designed to consider feedback following consultations with local people, and focus on: 'Quality Education', 'Clean Water & Sanitation', 'Good Health', and 'Sustainable Cities & Communities'.

Community initiatives include the construction of new quality homes for local communities, considerable investment in new infrastructure projects, including roads, schools, and health centres, investment in agriculture and livestock, and support for the development of small businesses.

These programmes are also directly related to helping local communities that





**Bissa mine provided 9,264 trees to local communities, resulting in the reforestation of over 3 hectares with mainly moringa trees**

live close to the semi-arid region of the Sahel to mitigate the impact of climate change. For example, the Tiben raw water reservoir near the mines also provides a valuable year-round water source for the local communities' farming activities, essential in an area impacted by climate change.

By the end of Bouly Mine's construction completion, the company had built 1,000 new concrete-quality houses for local communities, 16 water wells, eight mosques, churches, four community centers, seven primary schools and one

secondary school, eight sports fields, and a vaccination center. The overall resettlement budget exceeded \$10 million.

Bissa mine provided 9,264 trees to local communities, resulting in the reforestation of over 3 hectares with mainly moringa trees. And in 2022, Bissa hosted intensive training in apiculture for two local communities — in Mane, Sanmatenga province, and in Sabcé, Bam province. This recurring project supports the communities by building their professional capacity and helps to preserve the region's biodiversity.

Training was in the local Mooré language and introduced participants to beekeeping and honey production. They were given all the necessary equipment and materials to set up beekeeping units, having learnt how to manage them and protect the environment. The course was led by Continium Mining & BTP Training Center.

In 2021, the Bissa mine trained and equipped 40 beekeepers, enabling Sabcé to produce 1,200kg of high-quality honey.

Nordgold also launched a new first aid training programme for its employees to strengthen the Bissa mine's emergency-response readiness. In the first wave, 99 employees from geology, mining, mobile maintenance, plant, and supporting departments were certified as first aiders and are now primed and prepared to save lives in emergencies.

**Conclusion**

As the sun sets on another day in Burkina Faso, the Bissa-Bouly mines stand as beacons of hope, progress, and prosperity. Far from mere extractive operations, they are vibrant centers of community engagement, economic empowerment, and environmental stewardship. Through dynamic partnerships with local and international suppliers, Nordgold has harnessed the collective energy of diverse talents and resources, propelling its operations to unprecedented heights. From the bustling streets of Ouagadougou to the remote villages near the mines, Nordgold's impact reverberates, transforming lives and landscapes alike.

With each passing year, Nordgold's commitment to Burkina Faso grows stronger, evidenced by its ambitious solar power plans and ongoing investments



in social development. By fostering a culture of innovation, inclusivity, and responsibility, Nordgold paves the way for a brighter, more sustainable future for all. And as the company continues to pioneer new frontiers in mining, it does so with a steadfast dedication to leaving a positive legacy that extends far beyond the extraction of precious metals. In Nordgold's vision, Burkina Faso doesn't just shine brighter—it thrives, empowered by the enduring partnership between a global leader and the communities it serves.

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**Nordgold's Bissa-Bouly Gold Mine**

📞 +7 495 644 4473

✉ info@nordgold.com





## Nordgold's Bissa-Bouly Gold Mine

11 BP 1229 CMS OUAGA 11 783 Rue  
de la Chambre de Commerce  
15 618 commune de Ouagadougou  
Ouaga 2000  
Ouagadougou  
Burkina Faso

☎ +7 495 644 4473

✉ [info@nordgold.com](mailto:info@nordgold.com)

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